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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/048,795	03/27/1998	TOSHIO ICHIZAKI	35.G2127	4667

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NEW YORK, NY 10112

EXAMINER

ANDERSON, MATTHEW A

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 06/04/2003

38

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/048,795

Applicant(s)

ICHIZAKI, TOSHIO

Examiner

Matthew A. Anderson

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 45-47, 49-53, 55-59 and 62-74 is/are pending in the application.

4a) Of the above claim(s) 62-68 is/are withdrawn from consideration.

- 5) ☒ Claim(s) 45-47, 49-53 and 55-59 is/are allowed.

- 6) ☒ Claim(s) 69-74 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 32. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 62-68 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The previously considered invention and the method of the above claims are related as apparatus and process. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be use to form a fluoride glass.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 62-68 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 69, 71, 72, 73, 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara in view of Cheredov [Inorganic Materials, Vol. 28, No. 3 1992 (Russian)] and Wanetzky (US 4,818,282).

Tokuhara describes an apparatus comprising crucibles. The crucible is divided into multi-stages, each of which has an overflow passage on the sidewall (See Fig. 2.) Such an arrangement of crucibles reads on the claims of the applicant of a production apparatus having a crucible divided in multi-stages wherein a degassing hole is provided in a side wall portion of the crucible. Tokuhara states in the abstract that the bubbles in the melt outflow with the outflow of excess melt to ensure a quality product.

Tokuhara et al. does not disclose an apparatus wherein the crucibles (i.e. stages) are arranged such that the lower portion of a first stage of said plurality of stages is positioned to cover an upper edge of a wall portion of a second stage of said plurality of stages.

Cheredov in Fig I shows the sequential location of the crystallization front of a Calcium Fluoride crystal being refined in the multistage crucible shown. Also seen is a hole in the center bottom of each crucible stage. Also disclosed is the presence of oxygen for assisting the purification of the CaF being refined. This suggests gas flow as important to a successful crucible apparatus and in turn suggests some degree of evacuation.

Wanetzky et al. discloses staked crucibles (22) which have capillary gaps (28) for gas flow at the walls (24) thereof in the only Fig. Also clearly shown is a central concentric opening (26) in the crucibles.

It would have been obvious to modify the apparatus of Tokuhara, Cheredov, and Wanetzky to one of ordinary skill in the art at the time of the present invention because all inventions disclose multi-staged crucible apparatus and such a combination would have been anticipated to produce a quality product as disclosed by Tokuhara.

It would have been obvious to duplicate the part of degassing holes (see MPEP 2144.04 VI.B) in a crucible divided into a plurality of stages which is heated by a heater because Tokuhara discloses a hole in the side wall of such crucibles and duplication of such holes would have given the benefit of a quality product as per Tokuhara.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to include a connecting hole in the bottom center portion of the crucibles because such an arrangement is shown by Cheredov et al. and Wanetzky et al. and because such an arrangement would have been anticipated to produce an expected result of preventing the spilling of material out from the crucible.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to modify the size of the degassing hole and the inner diameter of the crucible (see MPEP 2144.04 IV.A), and the shape of the bottom face of the crucible (MPEP 2144.04 IV.B, because Tokuhara et al. discloses degassing holes in the sidewall of a crucible, Cheredov et al. and Wanetzky et al. discloses multistage crucibles with a hole at the center, and such a modified crucible would have had the same functionality.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to form a cylindrical crucible because Wanetzky et al. suggests such a crucible in the description to the Fig. (col. 5 lines 1-15 the crucible is body of rotation).

It would have been obvious to one of ordinary skill in the art at the time of the present invention that the crucibles of Tokuhara have a region for mounting a material (e.g. another crucible) because the crucible are described as stacking one on the other in the abstract and because providing such a mounting region on a crucible would have been anticipated to produce an expected result.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to have as the bottom stage a crucible without a connecting hole because if used with a refining method such as Cheredov's, such a stage would prevent loss of the refined molten material out onto the floor which would result in possible worker injuries and material losses and because such a bottom crucible would have been anticipated to produce an expected result.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to have an evacuated chamber in the apparatus because the act of refining suggests removing impurities from the material being refined.

Claim Rejections - 35 USC § 112

3. Claim 70 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Size as measured to an indefinite size (i.e. ...a diameter 0.9 to 0.95 times as large as a predetermined diameter.) is itself indefinite.

Allowable Subject Matter

4. Claims 45-47, 49-53, 55-59 are allowed.

The reasons are the same as previously given for these claims in paper 31.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matt Anderson whose telephone number is (703) 308-0086. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are not successful, the examiner's supervisor, Benjamin Utech, can be reached at (703) 308-3836.

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Any inquiry of a general nature can be directed to the group receptionist whose telephone number is (703) 308-0661.

MAA

June 3, 2003

Matthew Anderson
A.U. 1765